

SPACE TRANSPORTATION SOLUTIONS AND INNOVATIONS SYMPOSIUM (D2)
Future Space Transportation Systems (4)

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EUROPEAN NEXT GENERATION LAUNCHER – REUSABILITY AS AN OPTION FOR FUTURE
EUROPEAN LAUNCH SERVICES

Abstract

To keep AR5 competitive for the next 10-15 years, decisions have been prepared towards an improved AR5 ME-Version. But as these decisions are based on a rather conservative approach to technologies and markets, it does not include a long-term perspective with respect to future space markets. Thus the concept for the next generation launcher (NGL) after AR5 is still under discussion.

Despite the fact, that there is only a limited political support yet in this direction, it is proposed to take the option of a reusable ballistic launch vehicle concept into account. Technical concepts for partially and fully reusable launchers are analysed and compared to the actual NGL planning status with respect to mission capabilities, technological readiness and specific transportation costs.

Starting with actual estimations on the global space market, a rationale for introducing reusability into the NGL-Program will be provided. Based on the fact, that the provision of launch services currently still is widely a governmentally subsidized and controlled market it will be shown, that even the introduction of reusability may not cut specific transportation costs at current launch rates significantly, the development appears affordable within the European budget scenario. Different to the complex and expensive winged launch systems a ballistic concept is much simpler and does require new technology developments not only to a limited extent. It benefits from the existing re-entry capsule experience.

A reusable launch vehicle will open up an essential progress in space transportation as well as provides great opportunities for the European industry and assure European competitiveness in the space transportation business.

Fundamentally, in a future world of sustainability it seems not justified to waste the value of 100 to 200 Million Euros as well as the related resources for a single transportation service of 10 to 15 minutes duration when it is feasible to perform the same task by reusable vehicles at comparable or lower cost and much higher reliability.